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ABSTRACT

Intended for present and future operators of mopeds, this curriculum guide is designed to aid in the instruction of safe moped operation and control. Its objective is for these operators to increase their understanding of the various knowledge, skills, and performance factors that affect their safety as well as the safety of other street and highway users. Introductory materials include an overview of course contents, legal considerations (specific to Iowa), need for a moped education course, and information on various aspects of program development and operation, such as financing, insurance, facilities, equipment, program guidelines, teacher qualifications, scheduling guidelines, program evaluation, and instructional objectives. The course is composed of these five units: (1) Operator and Moped Preparation, (2) Basic Control Skills, (3) Safe Riding Practices, (4) Complex Situations, and (5) Moped Care. Each unit has a stated purpose and contains a number of functions (instructional components), each of which has performance, knowledge, skill, and/or attitude objectives. Appendixes include listings of audiovisual and printed materials, list of moped concepts by unit and function, and brief description of some moped skill exercises. (YLB)

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MOPED EDUCATION FOR IOWANS

State of Iowa

Department of Public Instruction

CE 029 305

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1981

FOREWORD

This moped education curriculum guide is designed to aid in the instruction of safe moped operation and control. Present or future operators of mopeds can increase their understanding of the various knowledge, skill, attitude and performance factors which affect their safety as well as other street and highway users by acquiring the knowledge and information herein contained.

Development of this guide was facilitated by and complied with the provisions of Highway Safety Project Problem Solution Plan 81-10-01, Task I, which was authorized and approved by the Office for Planning and Programming, Governor's Highway Safety Office in cooperation with the U. S. Department of Transportation, National Highway Traffic Safety Administration.

The opinions, findings and conclusions expressed in this publication are those of the author or those specifically referenced and are not necessarily those of either the Governor's Highway Safety Office or the National Highway Traffic Safety Administration.

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INTRODUCTION

Moped education is based on the recognition that a need exists for preparing new and beginning drivers and was given its genesis by the Iowa General Assembly during the 1980 session.

The Moped Task Analysis served as a research basis for identifying the knowledge and skills which are vital to acquiring and practicing those factors which would be productive to the preparation and development of safe moped operators.

The four types of instructional objectives are performances, knowledges, skills and attitudes. Performance objectives address the behaviors which are required for safe operation. Knowledge objectives are foundational and supportive of the performance objectives. They identify the information necessary for achieving the performance objectives. Skill objectives are necessary to bridge the gap between the knowledge and performance objectives. They are necessary in applying the perceptual, manipulative and mental abilities which are germane to the performance objectives. Attitude objectives are fundamentally related to the performance objectives, but are paramount in acquiring and utilizing the knowledge and skill which is conducive to safe moped operation. They are presented in the form of beliefs or opinions which can motivate students to safe performance actions.

CONTENTS

The following instructional components shall be included in every approved moped education course.

1. Operator and Moped Preparation
   - A. Knowledge of Iowa driving laws
   - B. Knowledge of Iowa vehicle registration requirements
   - C. Vehicle inspection
   - D. Protective clothing and devices
   - E. Risk assessment
   - F. Route selection
2. Basic Control Skills
   - A. Starting procedures
   - B. Speed control
   - C. Turning
   - D. Stopping
3. Safe Driving Practices
   - A. Use of lights and warning devices
   - B. Signalling
   - C. Maintaining directional control
   - D. Perception skills and seeing
   - E. Use of mirrors
   - F. Hazards recognition
   - G. Speed control
   - H. Lane positioning
   - I. Intersection concerns and conflicts
   - J. Following distances
   - K. Lateral separation
   - L. Overtaking and passing techniques
4. Complex Situations
   - A. Limited visibility
   - B. Adverse weather
   - C. Critical situations
   - D. Malfunctions
5. Moped Care
   - A. Inspection
   - B. Maintenance

EVALUATION

An evaluation process should be established which will clearly specify criteria that will measure the levels of achievement of the instructional objectives. This is especially important to those programs which do not offer practice experiences involving actual operation of a moped. It is necessary to determine satisfactory achievement in the course which will identify those students who have successfully completed the course and are eligible to receive a Certificate of Completion.

LEGAL CONSIDERATIONS

The legal references pertaining to mopeds and moped education programs are listed in the appendix.

The following is Section 321.189 of the Code of Iowa and is applicable to moped driver licensing and moped education programs.

> The department may issue a motorized bicycle license to a person fourteen years of age or older who has passed a vision test and a written examination on the rules of the road. After July 1, 1981, persons under the age of sixteen applying for a motorized bicycle license shall also be required to successfully complete a motorized bicycle education course approved and established by the Department of Public Instruction or successfully complete an approved Motorized Bicycle Education Course at a private or commercial driver education school licensed by the department. A public school district may charge a student a fee which shall not exceed the actual cost of instruction. A motorized bicycle

license entitles the licensee to operate a motorized bicycle upon the highway while having the license in the licensee's immediate possession. The license is valid for a period of two years, subject to termination or cancellation as provided in this section.

The Iowa Administrative Code contains the following rules for moped education courses:

670--6.12(257) MOTORIZED BICYCLE EDUCATION.

6.12(1) Course Approval. An approved course shall consist of a minimum of six (6) clock hours of classroom instruction or completion of a classroom course which includes the instructional components contained in 6.12(2).

A. Motorized Bicycle driving experiences in addition to classroom instruction are permissible, but not required.

B. Any school district, area education agency, merged area school, other agency or individual planning to offer a motorized bicycle education course, must receive course approval prior to beginning. Application and analysis forms are provided by the Department of Public Instruction.

6.12(2) Course Content. The following instructional componets shall be incorporated in every motorized bicycle education course.

A. Operator and Motorized Bicycle
   (1) Knowledge of Iowa driving laws
   (2) Knowledge of vehicle registration requirements
   (3) Vehicle inspection
   (4) Protective clothing and devices
   (5) Risk assessment
   (6) Route selection

B. Basic Control Skills
   (1) Starting procedures
   (2) Speed controls
   (3) Turning
   (4) Stopping

C. Safe Driving Practices
   (1) Use of lights and warning devices
   (2) Signalling
   (3) Maintaining directional control
   (4) Perception skills and seeing
   (5) Use of mirrors
   (6) Hazards recognition
   (7) Speed control

(8) Lane positioning

(9) Intersection concerns and conflicts

(10) Following distances

(11) Lateral separation

(12) Overtaking and passing techniques

D. Complex Situations

(1) Limited visibility

(2) Adverse weather

(3) Critical situations

(4) Malfunctions

E. Motorized Bicycle Care

(1) Inspection

(2) Maintenance

6.12(3) Evaluation. Each student shall be evaluated to determine successful completion of the course.

6.12(4) Teacher Qualifications. Teachers of an approved motorized bicycle education course shall possess a valid Iowa operator's or chauffeur's license and be able to operate a motorized bicycle.

Registration of mopeds is required if they are to be operated on the public streets and highways.

Public school districts can obtain Official School license plates by applying to the Official License Section, Division of Motor Vehicle Registration, Iowa Department of Transportation, Lucas State Office Building, Des Moines, Iowa 50319.

Drivers must be licensed to operate mopeds on the street or highway. This can be satisfied by having an operator's license, a chauffeur's license or a moped only license. An instruction permit is not valid for operation of a moped.

Financial responsibility laws apply to both moped owners and operators. The current liability limits of $15,000/30,000/10,000 (a total of $40,000) are in effect until January 1, 1983 at which time they increase to $20,000/40,000/15,000 (a total of $55,000).

Private property or school owned property can be utilized for moped operation instruction and practice driving if done in compliance with Section 321.1(48), Code of Iowa.

Moped Education Programs offered by other than public school districts need to meet identical curriculum and teacher standards, but in addition must be licensed by the Iowa Department of Transportation. Contact the Office of Drivers License, Lucas State Office Building, Des Moines, Iowa 50319, for details.

NEEDS

Establishing a moped education program should be based on a recognized need. This can be ascertained by consideration of community circumstances, school philosophy and student demand. It would appear that 14 and 15 year old students are the most appropriate age levels with respect to licensing. However, it should be anticipated that 13 year old students would want to become qualified so that upon reaching age 14, they will be able to obtain a moped only license.

Consumer education is a concomitant benefit to students. They could gain an understanding of moped selection, care, maintenance, insurance and the capabilities and limitations of mopeds.

Driving strategies will assist in preparing the young and less experienced moped drivers for their entry into the traffic world of motor vehicles.

Energy efficient techniques of driving with consideration of how and when moped use is practical as well as safe should be included. This would have beneficial effects immediately and create an energy awareness which would be foundational for driving and energy concerns in the future.

Use of safety equipment and protective clothing by students should be encouraged to provide a better understanding of their purpose and value.

Mopeds hold potential career education implications for many. For others, mopeds may lead to future transition into motorcycles.

It is anticipated that moped education would be an effective collision countermeasure. However, it should be recognized that enforcement, adjudication and engineering are also related factors.

FINANCING

Legal provisions permit charging students a fee for a moped education course. However, public school districts are limited to the actual costs of instruction. State or federal funds have not been made available to defray or reimburse costs of courses offered.

Programs which contain only a classroom instruction phase should incur lesser expenses than one in which actual moped operation or driving on street is offered. Major cost considerations should include teacher salaries, mopeds, operational costs, instructional materials, insurance, facilities and miscellaneous equipment.

MOPEDS

It is possible to conduct a moped education course without using a moped if only a classroom instruction phase is planned. However, it would be productive to have a moped for student observation and teacher demonstration. Iowa does not legally define a moped as having moving pedals so, each type would be beneficial to have available to present an awareness of its respective characteristics.

INSURANCE

Insurance is a wise consideration for any school, agency, or individual which intends to offer moped instruction. Two basic forms of insurance should be considered - the liability interests of the sponsor and additional coverage for the mopeds being used in the program. Sponsors should check with their insurance agents for details.

Iowa law requires owners and operators of mopeds to be financially responsible. Therefore, be sure to have the desired coverage prior to commencing a program. Availability and rates vary with onstreet programs usually costing more.

Typical types of insurance coverage would include program liability, personal or bodily injury liability, property damage liability, collision, comprehensive, medical, towing and emergency road service, uninsured motorist, and underinsured motorist. Passenger liability would probably be unnecessary since Iowa law does not permit carrying a passenger on a moped.

Another consideration relates to schools using loaned mopeds from dealers. Unless school districts title them, they will want to be sure that insurance coverage is provided for non-owned vehicles. This may necessitate a different form of policy.

CONTRACT

If loaned or leased mopeds are used in a moped education program, a written agreement should be made by the program sponsor and the moped dealer providing the mopeds. Basic provisions should cover the responsibilities of each party as they pertain to acquisition, use, care, repair, maintenance, storage and return of the mopeds. Be certain to review the insurance and financial responsibility factors which apply to both owners and users of mopeds.

A copy of a model contract is contained in appendix C.

A joint inspection by both sponsor and dealer of each loaned moped upon delivery from and return to the dealer should be conducted. See appendix D.

FACILITIES

Facilities for the classroom instruction should include a classroom of adequate size with temperature and ventilation control, proper lighting and a sufficient number of desks and chairs or desk-type chairs. Also, room darkening capability should exist to facilitate use of visual projection and presentations.

Audio-visual equipment should be available. This would include a tape recorder, chalk board, overhead projector, slide projector and a 16mm film projector.

An off street instruction area could be a specially constructed driving range, an existing parking lot or some other designated area.

EQUIPMENT

If a program is designed to offer actual operation of mopeds, the following additional equipment is recommended:

Communication system - bull horn or radios

Tool kit - standard and metric

Fire extinguisher

First aid kit

Gasoline and oil cans

Helmets and face shields

Mopeds

Vests - (high visibility - for use on street - also identification as "student driver")

Six inch traffic cones

PROGRAM GUIDELINES

The current rules permit flexibility. A course can be scheduled for a minimum of six hours or can be based entirely on curriculum content. The time base of six hours of classroom instruction may not be of sufficient length to adequately cover the necessary content. Therefore, the time does not have to be limited to six hours.

The content based program provides for offering a course without the restrictions or limitations of time. The ultimate objective is to provide the moped operator with learning experiences that will be preparatory for safe entry into street and traffic situations. Learning the concepts identified in the Moped Task Analysis and contained in the prescribed course content is paramount over the time it might take.

TEACHER QUALIFICATIONS

Two factors are necessary to become approved as a qualified moped education teacher: (1) Possess a valid Iowa drivers license (operator's or chauffeur's); and (2) Have the ability to operate a moped. These are

important because knowing the Iowa driving laws and having an understanding of the control factors of a moped are fundamental to teaching a basic course.

There are no additional requisites for teacher approval other than making application and receiving official approval. Forms will be provided by the Department of Public Instruction upon request.

SCHEDULING GUIDELINES

Moped courses of instruction can be offered during the regular school day, before or after regular school hours, on Saturdays, during the regular school year or in the summer. The important element of scheduling relates to the availability of courses available at times convenient to the students.

Common sense should dictate the length of any given instructional period to cope with attention spans and fatigue factors.

Courses having actual moped operation should structure instruction on a concurrent basis with classroom sessions preceding the driving activities.

PROGRAM EVALUATION

Programs should be evaluated periodically to assure that student and program objectives are being achieved. Students could be surveyed to obtain their perspective and to identify any individual concerns or additional concepts not included in the current course.

INSTRUCTIONAL OBJECTIVES

The following objectives focus attention on four different, but vital aspects of preparation for safe moped operation. They identify and address performances, knowledges, skills and attitudes.

Performance objectives describe the behaviors vital to the safe operation of mopeds.

Knowledge objectives are foundational to and supportive of the performance objectives. Knowledge of information which relates to specific performance objectives will facilitate their attainment.

Skill objectives bridge the gap between knowledge and performance objectives. They identify the abilities necessary for developing and achieving the desired performance capabilities. Basically they include three types of skills - perceptual, manipulative and mental.

Attitude objectives are instrumental in the safe operation of mopeds and are expressed in terms that clarify or amplify beliefs or opinions. Also, they can be motivational for recognizing and accepting the fact that they can have favorable results in acquiring and maintaining safe operational control when applied.

The Moped Task Analysis will aid in giving direction to the establishment of programs which would involve instruction in the classroom and on the mopeds. Although Iowa law does not require both phases of instruction, they are presented herein to provide direction for those programs which will be offering both phases.

UNIT I - OPERATOR AND MOPED PREPARATION

Purpose: To enable the student operator to initiate and terminate operation.

Functions:

(1) Preparing Self

(2) Preparing Moped

(3) Post Operation

I. PREPARING SELF

Performance Objectives

The student operator must:

1. Determine optimal route for intended purposes.
2. Select suitable eye protection, helmet and clothing, and adjust them for proper fit.
3. Comply with state laws relating to moped operators.

Knowledge Objectives

The student operator must know:

1. A. Roadway type, composition and availability of shoulder.
   B. Traffic type, patterns and speed.
   C. Personal skill and capabilities.
2. A. The appropriate safety and comfort characteristics of clothing, including shoes and pants, jacket, and helmet, including "bicycle" and "jet" styles.
   B. Proper type of protection.
   C. Relationship of proper clothing to injury prevention.
   D. Relationship of proper clothing to seeing and being seen.
3. A. State operator age limits, licensing rules, insurance requirements and helmet regulations.
   B. State motor vehicle laws pertaining to moped operation on public streets.

Attitude Objectives

The student operator must believe that:

1. The moped's lack of power makes traffic a hazard.

2. A. Wearing a helmet, eye protection and other protective clothing will reduce the chances and severity of injury.

   B. It is better to incur the expense and inconvenience of obtaining and wearing protective equipment than it is to suffer the consequences of an injury or the result of an accident.

2. PREPARING MOPED

Performance Objectives

The student operator must:

1. Be able to perform an inspection of tires, spokes, mirrors, chains, belts, fuel, lights and horn for proper functioning, correct adjustment and lubrication.

2. Comply with state laws and regulations relating to moped registration requirements, maximum engine limits and equipment regulations.

Knowledge Objectives

The student operator must know:

The normal appearance and operating condition of each part for maximum vehicle control and prevention of malfunctions and accidents.

Attitude Objective

The student operator must believe that:

It is better to perform a pre-operative inspection than it is to have a malfunction or engine stall while operating.

3. POST OPERATION

Performance Objectives

The student operator must:

1. Shut off the moped engine by activating the engine stop switch and ignition key, if equipped.
2. Turn off the fuel valve, park the moped and engage security devices.

Knowledge Objectives

The student operator must know:

The location of the engine stop switch and ignition key, if equipped, and the proper procedure for using them.

UNIT II - BASIC CONTROL SKILLS

Purpose: To enable the student operator to start the moped engine, ride and stop in a controlled environment.

Functions: (1) Starting the Engine

(2) Turning

(3) Stopping

1. STARTING THE ENGINE

Performance Objectives

The student operator must:

1. Prepare the engine for starting by placing the fuel valve, engine stop switch, choke, fuel enrichment device and ignition key, if applicable, in the proper position.

2. Be able to start the moped while it is on the stand and while moving by coordinating starter lever, throttle, and the pedals (if it has them).

Knowledge Objective

The student operator must know:

The location and proper operation of the fuel valve, engine stop switch, choke and fuel enrichment device.

Skill Objective

The student operator must be able to:

Coordinate the moped's starter lever, throttle and pedals (if it has them).

2. TURNING

Performance Objectives

The student operator must:

1. Be able to follow a normal curved path.
2. Be able to make a quick turn.

Knowledge Objective

The student operator must know:

The effects of body and moped lean, steering and speed upon turning.

Skill Objectives

The student operator must be able to:

1. Coordinate steering and throttle adjustment to maintain balance and control.

2. Coordinate steering, throttle adjustment and body lean to initiate and terminate quick turn.

3. STOPPING

Performance Objectives

The student operator must:

1. Be able to come to a gradual stop at a predetermined place using both brakes.
2. Be able to come to a rapid stop.

Knowledge Objectives

The student operator must know:

1. A. The relative capability of each brake.
   B. The brake that each lever controls.
   C. Variations in stopping distance caused by different surface conditions.

Skill Objectives

The student operator must be able to:

1. Judge the amount of brake force needed and distance required to stop the moped from any given speed.
2. Apply both brakes maximally without locking them.

UNIT III - SAFE RIDING PRACTICES

Purpose: To enable the student operator to cope with various roadway surfaces and configurations and to interact with other road users.

Functions: (1) Communication

(2) Seeing

(3) Maintaining Separation

(4) Positioning

(5) Speed Control

(6) Hazard Identification

I. COMMUNICATION

Performance Objectives

The student operator must:

1. Use lights, reflective materials and equipment, horn and/or other warning devices to make other road users aware of the moped's presence.
2. Signal all lateral movements and speed reductions.
3. Use brake light to communicate the moped's presence to overtaking vehicles, during conditions of limited visibility, when reducing speed or when stopped.

Knowledge Objectives

The student operator must know:

1. Situations and maneuvers requiring communication of intentions and presence to improve safety.
2. The proper amount of brake lever force necessary to illuminate the brake light.

Attitude Objectives

The student operator must believe that:

1. Because the moped is inconspicuous, riding in traffic is hazardous.

2. A. Signalling the intent to change direction is important in reducing the likelihood of accidents.

   B. Accident avoidance requires signalling, whether another vehicle is observed or not.

3. A. Vehicle drivers behind will not see a moped.

   B. Communication of a moped's presence to vehicle drivers behind is important in reducing the likelihood of an accident.

2. SEEING

Performance Objectives

The student operator must:

1. Continually scan the road ahead, to the sides, behind, and on the side of the road while operating.

2. Observe slow-moving or stopped vehicles in the path ahead.

3. Look to each side when approaching areas where the moped will enter a flow of traffic or where other road users may enter the moped's path.

4. Adjust mirrors when necessary and observe the roadway behind periodically.

5. Observe adjacent vehicles and vehicles behind by utilizing over-the-shoulder glances when negotiating lateral movements, including lane changes, entering or merging into the roadway and when operating on multi-lane roads.

6. Observe signs, signals and roadway markings.

7. Observe the roadside area periodically for potential escape routes.

Knowledge Objectives

The student operator must know:

1. A. The hazards which may be present in the road ahead, to the sides, behind, and on the side of the road during general operation, and when approaching all intersections, junctions and grades.

   B. The hazards which may be approaching in the road ahead, to the sides, and behind including oncoming left-turning vehicles, adjacent right-turning vehicles, passing vehicles, following vehicles, bicycles and pedestrians.

   C. The hazards which the moped may be approaching on the roadway ahead.

2. Where slow-moving or stopped vehicles are most likely to be.

3. The critical locations which demand checking in all directions before proceeding, including all intersections, junctions and areas where vehicles are parked on the roadside.

4. The appropriate rearward view from each properly adjusted mirror.

Skill Objectives

The student operator must be able to:

1. Maintain directional control while using mirrors.

2. Maintain directional control while looking over the shoulder.

Attitude Objectives

The student operator must believe that:

1. Because the moped is difficult for other motorists to see, the moped operator must perform all possible visual search activities.
2. Vehicles approaching from the side will not necessarily yield the right-of-way.
3. Accident avoidance requires the observation of traffic from the rear.
4. Over-the-shoulder observation is necessary to avoid accidents.
5. The threat from overtaking vehicles justifies seeking escape paths.

3. MAINTAINING SEPARATION

Performance Objectives

The student operator must:

1. Maintain a sufficient following distance to permit adequate time to respond to changes in speed or direction of vehicle ahead.
2. Achieve adequate lateral separation within lane from slow-moving, standing, stopped or parked vehicles, vehicles from the side, bicycles and pedestrians.
3. Maintain adequate separation from overtaking and passing vehicles when making a left turn.
4. Maintain adequate separation from overtaking, passing or right turning vehicles when proceeding straight across an intersection.

5. Maintain adequate separation from roadside obstructions and debris when operating in a straight line, proceeding across intersections or making a right turn.

6. Maintain adequate separation from surface obstructions including debris, potholes and loose gravel, and from surface irregularities including degraded roadway edges, longitudinal irregularities and metal grates.

7. Respond to overtaking vehicles approaching too quickly or following too closely.

Knowledge Objectives

The student operator must know:

I. A. The condition under which a moped's speed must be regulated, including when operating in urban areas and on gradients.

B. How to compute following distance by counting.

C. The distance required to stop a moped when operating at different speeds and in different conditions.

2. A. Proper turning maneuvers necessary to maintain separations while making left turns, including a standard left turn, a delayed left turn and a perimeter left turn.

B. The type of intersection, traffic conditions and level of visibility which determines appropriate left turn maneuvers.

Skill Objectives

The student operator must be able to:

I. Judge acceptable following distances.

2. Judge closing distances and speeds of overtaking vehicles from mirror images.

Attitude Objectives

The student operator must believe that:

1. A. Vehicles ahead will often stop without warning.

   B. Because a moped has limited braking capabilities, it is important to leave sufficient room to stop behind the vehicle ahead.

2. Other vehicles or road users in a moped's lane will behave erratically enough to cause an accident.

3. It is better to take additional time to turn left using the proper maneuver than it is to proceed through an intersection using an unsafe turn maneuver.

4. A. Other motorists at intersections often will not see a moped.

   B. Motorists at intersections will make unexpected directional changes.

5. A. Roadside obstructions will not allow sufficient clearance for extended moped parts such as pedals and rear wheel during a right turn.

   B. Roadside debris will reduce surface friction enough to cause loss of control.

6. It is better to move off of the roadway and allow other vehicles to pass then it is to force them to follow.

4. POSITIONING

Performance Objectives

The student operator must:

1. Operate in the right lane except when avoiding obstacles or preparing for a standard left turn.

2. Operate in the appropriate lane position in terms of lane width, traffic factors, intended maneuver and type of street (one way or two way).

Knowledge Objectives

The student operator must know:

1. The importance of being separated from faster moving traffic.
2. The relationship between those factors which determine proper lane position, i.e., lane width, speed of traffic, traffic density, intended maneuver and hazard to the moped operator.

Attitude Objectives

The student operator must believe that:

1. Because a moped is a relatively slow-moving vehicle, it is safer to operate in the right or slowest moving traffic lane.
2. Improper lane positioning increases a moped's exposure to hazard.

5. SPEED CONTROL

Performance Objectives

The student operator must:

1. Adjust speed to changing roadway characteristics, including different roadway configurations, gradients and surface conditions.
2. Adjust speed to permit maximum maneuverability when encountering other road users including passing vehicles, adjacent vehicles, bicyclists and pedestrians.
3. Operate at a speed which allows the moped to stop behind or maneuver around slow-moving or stopped vehicles, surface obstacles or irregularities in the path ahead.

Knowledge Objectives

The student operator must know:

1. The effect of different roadway characteristics upon the ability of mopeds to change direction and stop.
2. Which vehicles, obstacles or irregularities ahead may require mopeds to maneuver around or stop behind.

Attitude Objectives

The student operator must believe that:

1. Even though mopeds are low-powered vehicles, failure to adjust speed to changing roadway characteristics will create hazardous situations for the moped operator.
2. Other road users will behave erratically.

6. HAZARD PERCEPTION

Performance Objective

The student operator must:

Scan roadway far enough ahead and to the sides to identify and respond to clues of upcoming hazards.

Skill Objectives

The student operator must be able to:

1. A. Perceive cues of potential hazardous actions by other roadway users, including:

Open car door, e.g., brake lights of a parallel parked vehicle shutting off.

Pedestrian in roadway, e.g., pedestrian ahead standing on side of roadway or between parked cars.

Adjacent right turning vehicle, e.g., right turn signal of adjacent vehicle is activated.

B. Identify hazards which the moped is approaching including:

Loose surfaces, e.g., gravel near roadway edge, especially at intersections.

Lateral irregularities, e.g. railroad tracks, speed bumps.

Longitudinal irregularities, e.g., diminishing street or lanes, roadway edges.

Surface obstructions, e.g., debris which has been spilled on the roadway by trucks or other vehicles.

Attitude Objective

The student operator must believe that:

Because mopeds are hard to see when they operate near the edge of roadways, they are vulnerable to many roadway and roadside hazards.

UNIT IV - COMPLEX SITUATIONS

Purpose: To enable the student operator to deal effectively with conditions which complicate moped operation beyond normal roadway and traffic conditions.

Functions:

(1) Limited visibility

(2) Adverse weather

(3) Critical situations

(4) Malfunctions

I. LIMITED VISIBILITY

Performance Objectives

The student operator must:

1. Adjust speed to operate within range of the moped's headlight during hours of darkness and limited visibility.
2. Increase separation when operating during conditions of limited visibility.
3. Increase conspicuity when operating during conditions of limited visibility by using reflective clothing, other reflective material, headlight and brakelight.

Knowledge Objective

The student operator must know:

The range of visibility provided by the magneto-powered headlight at different speeds.

Attitude Objectives

The student operator must believe that:

1. By operating too fast for visibility conditions, moped operators may become subject to hazards which they cannot even see.
2. During conditions of limited visibility, the ability of all motorists to judge closure rates is decreased.
3. A. Utilizing reflective items and available lights will reduce the chances of accidents and injury.

   B. It is better to incur the expense and inconvenience of obtaining and utilizing extra reflective clothing and materials than it is to suffer the consequences of an injury or property damage as the result of an accident.

2. ADVERSE WEATHER

Performance Objectives

The student operator must:

1. Be able to maintain balance and control when operating in wind conditions.
2. Reduce speed and increase separations when operating in wind, cold, rain, snow or ice conditions.
3. Avoid operation when maintaining control of the moped interferes with safe operating procedures.

Knowledge Objectives

The student operator must know:

1. How head, tail and cross winds affect moped handling, including speed control, turning and stopping.
2. A. The effects of wind chill and body fatigue on maintaining control of the moped.
   B. The effect of reduced surface friction caused by rain, ice or snow on ability to control moped speed and direction.

Skill Objective

The student operator must be able to:

Determine wind force from visual and somatic clues.

Attitude Objective

The student operator must believe that:

Adverse weather conditions affect moped operators more severely than they affect most other motorists.

3. CRITICAL SITUATIONS

Performance Objectives

The student operator must:

1. Be able to surmount roadway and roadside obstacles that cannot be maneuvered around safely.
2. Be able to maintain balance and control when crossing both lateral and longitudinal irregularities.
3. Be able to make a rapid stop behind obstacles which cannot be surmounted.
4. Be able to make a quick turn around obstacles which cannot be surmounted or stopped behind.
5. Be able to leave the roadway when necessary, including when an overtaking vehicle approaches too rapidly or when a passing vehicle returns to the moped's lane prematurely.

Knowledge Objectives

The student operator must know:

1. A. Surmounting capabilities of moped.
   B. The frame/ground clearance of the moped.
2. Proper angle at which to approach an irregularity.

Skill Objectives

The student operator must be able to:

1. A. Approximate heights or depths of obstacles.
   B. Lift the moped's front wheel off the ground to facilitate surmounting obstacles which have a height or depth greater than the moped's ground clearance.
2. Coordinate brakes, throttle and weight distribution when surmounting irregularities.

3. Determine which obstacles in roadway cannot be surmounted.

4. Judge speed and separation which will not allow time and distance for moped to stop.

5. Combine quick turning and surmounting abilities with the ability to steer and brake on a degraded surface.

4. MALFUNCTIONS

Performance Objectives

The student operator must:

1. Be able to determine causes of stalled engine.

2. Be able to adjust fuel valve to "reserve" setting and engine stop switch to "run" while the moped is in motion.

Knowledge Objective

The student operator must know:

Common causes of stalling, including mispositioned engine "stop" switch or fuel valve and lack of fuel.

Skill Objectives

The student operator must be able to:

1. Identify indicators of malfunctions.

2. Locate auxiliary controls by "feel."

UNIT V - MOPED CARE

Purpose: To enable the student operator to maintain the moped in safe and reliable condition.

Functions: (1) Inspection

(2) Maintenance

1. INSPECTION

Performance Objective

The student operator must:

Inspect the moped exterior, including lights, reflectors, cables, joints, muffler opening, nuts and bolts, stand, wheels, tires, spark plugs, suspension system, fuel system and drive system.

Attitude Objective

The student operator must believe that:

Periodic inspections prevent breakdowns which might otherwise lead to an accident.

2. MAINTENANCE

Performance Objective

The student operator must:

Be able to perform the maintenance activities according to the procedures set forth in the owner's manual including retightening all nuts and bolts, replacing or cleaning the spark plug and lubricating the chains and cables.

Knowledge Objectives

The student operator must know:

1. A. Both the moped and the owner's manual in order to service and maintain the moped properly.

B. Which maintenance activities should be performed by the owner/operator and which should be performed by a dealer.

Skill Objective

The student operator must be able to:

Perform basic maintenance activities.

APPENDIX A

AUDIO VISUAL MATERIALS

Moped Instruction Kit

Contains curriculum guide, instructional objectives, slides, cassette tapes and transparency masters. Available from the School Transportation and Safety Education Division, Iowa Department of Public Instruction, Grimes State Office Building, Des Moines, Iowa 50319.

Super Seven

A 15-minute slide-cassette program which was developed from the Moped Task Analysis by the National Public Services Research Institute utilizes the dialogue technique involving teenagers. Recommended for teenagers. Available from National Highway Traffic Safety Administration, U. S. Department of Transportation, Washington, D. C. 20590 or National Public Services Research Institute, 123 North Pitt Street, Alexandria, Virginia 22314.

Seven Steps To Survival

A 10-minute slide cassette program which is a condensed version of Super Seven utilizing a narration rather than dialogue. Recommended for adults. Available from NHTSA, U. S. Department of Transportation, Washington, D. C. 20590 or National Public Services Research Institute, 123 North Pitt Street, Alexandria, Virginia 22314.

APPENDIX B

PRINTED MATERIALS

Code of Iowa, Section 321, State of Iowa, Department of General Services, Printing Division, Grimes State Office Building, Des Moines, Iowa 50319. Contains motor vehicle and moped laws.

International Motorcycle Safety Conference Proceedings, Motorcycle Safety Foundation, 780 Elkridge Landing Road, Linthicum, Maryland 21090. Contains presentation papers and research findings on motorcycle and moped concepts and concerns.

Learn the Big 5 of Moped Safety and Pleasure, Moped Association of America, 1001 Connecticut Avenue, N.W., Washington, D.C. 20036. This publication addresses five factors which affect the safe operation of mopeds - the moped, the road, the operator, the other person and the weather.

The Moped Report, Ohio Department of Education, 65 Front Street, Room 811, Columbus, Ohio 43215. Contains the "state of the art" of the moped in the United States and analyses of issues related to the moped and its impact on traffic safety.

Moped Safety, American Honda Motor Company, 100 West Alondra Boulevard, Gardena, California 90247. This comprehensive brochure covers many of the basics of moped operation including rider preparation, moped preparation, starting and operating procedures, braking techniques, driving strategies and moped maintenance. Available from Honda dealers.

Moped Task Analysis, National Public Services Research Institute, 123 N. Pitt Street, Alexandria, Virginia 22314. This publication contains the results of research conducted to identify the operational concerns of a moped, the respective criticality of the various tasks of operation and the instructional objectives desirable for moped education programs. Available from National Highway Traffic Safety Administration, U.S. Department of Transportation, 400 7th Street, S.W., Washington, D.C. 20590.

APPENDIX B

Profiles of Iowa Motorcycle and Moped Operators, Iowa Department of Transportation, Office of Safety Programs, Lucas State Office Building, Des Moines, Iowa 50319.

What's Your Moped Intelligence Quotient?, Iowa Department of Public Instruction, Grimes State Office Building, Des Moines, Iowa 50319. This brochure focuses attention on safe and legal aspects of moped operation utilizing a format of 10 questions and answers. Available from Governor's Highway Safety Office, 523 East 12th Street, Des Moines, Iowa 50319.

APPENDIX C

MOPED LOAN AGREEMENT

DEALER NAME _____

ADDRESS _____

DEALER AGREES TO:

1. Provide without cost to the sponsor the mopeds identified below which are legally equipped and in safe operating condition.

MOPED INFORMATION NUMBER OF MOPEDS: _____

Unit	Model	Identification #	Unit	Model	Identification #
1	_____	_____	1	_____	_____
2	_____	_____	2	_____	_____
3	_____	_____	3	_____	_____

AGREEMENT PERIOD FROM _____ TO _____

SPONSOR NAME _____

ADDRESS _____

SPONSOR CERTIFIES:

1. The mopeds will be used exclusively for a moped safety education program approved by the Iowa Department of Public Instruction.
2. The teacher possesses a valid operator's or chauffeur's license.
3. Student operation of the mopeds will be only in the presence of and under the direct supervision of an approved moped safety education teacher.
4. Approved safety helmets will be worn by all persons on a moped while it is in motion or likely to be set in motion.
5. Mopeds will be serviced and maintained according to the Owner's Manual.
6. Appearance of mopeds will be appropriately maintained.
7. Mopeds will be insured in amounts agreed upon by both sponsor and dealer.
8. Mopeds will be garaged and properly secured.
9. A joint inspection of mopeds will be made upon receiving and returning mopeds. The sponsor will pay for any servicing and repairs mutually agreed upon as necessary in order to restore to original condition except for normal wear.

DEALER SIGNATURE _____ DATE _____

SPONSOR SIGNATURE _____ DATE _____

APPENDIX D

JOINT INSPECTION REPORT

MOPED EDUCATION PROGRAM

MAKE _____ LICENSE # _____

ODOMETER READING _____ SERIAL # _____

PLEASE INDICATE WITH A CHECK (✓) EACH ITEM WHICH IS IN GOOD CONDITION OR NOTE ANY DEFECT.

ITEM	RECEIVED FROM DEALER	RETURNED TO DEALER
1. FRAME		
2. FORKS		
3. SHOCKS		
4. SADDLE		
5. HANDLEBARS		
6. FENDERS		
7. TIRES (& PRESSURE)		
8. RIMS		
9. SPOKES		
10. CHAIN / BELT/SHAFT		
11. MUFFLER		
12. CENTER STAND		
13. GAS TANK & TOP		
14. GAS SUPPLY		
15. OIL SUPPLY		
16. MIRRORS		
17. PEGS/PEDALS		
18. BRAKE LEVERS		
19. STARTING LEVER		
20. SWITCHES		
21. LIGHTS		
22. HORN		
23. THROTTLE		
24. CABLES		
25. CHOKE		
26. REFLECTORS		
27. PAINT		
28. LEAKS		
29. ACCESSORIES		
30. # OF KEYS		
31. OTHER		

SCHOOL _____ DEALER _____

CITY _____ CITY _____

DATE _____ DATE _____

SIGNATURE _____ SIGNATURE _____

APPENDIX E

CODE OF IOWA, SECTION 321

This section contains various state laws which pertain to mopeds, their owners and their operators.

321.1 (3B)	Defines a motorized bicycle/moped
321.1 (44)	Defines a driver
321.1 (48)	Defines street or highway
321.1 (49)	Defines private road or driveway
321.18-19	Required registration or exception
321.45	Transfer of title
321.71	Odometer requirements
321.98	Highway operation
321.117	Moped registration fee
321.174-.177	Drivers - Licensed and exempted
321.178	Driver education
321.180	Instruction permits
321.189	Moped education
321.189	License carried and exhibited
321.189	Expiration date of driver's license
321.191	Fee for moped drivers license
321.194	Minor's school license
321.216	Unlawful use of driver's license
321.238	Motor vehicle inspection
321.275	Operation of mopeds
321.275	Lights on
321.275	No passengers
321.317	Use of four way flashers
321.386	Number of headlights
321.409	Light standards
321.415	High beam use in daytime
321.430	Moped brake system
321A	Financial responsibility
321B	Implied consent law

APPENDIX F

MOPED CONCEPTS

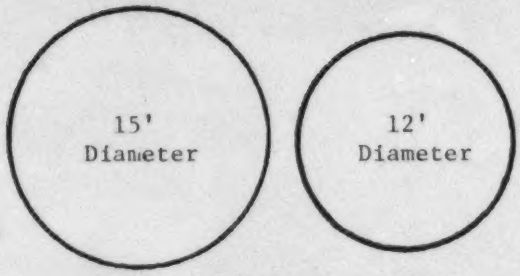
1.0	Operator and Moped Preparation	
1.1	Route Selection	roadway/type composition shoulder availability traffic speeds and patterns personal skill and capabilities
1.2	Protective Clothing	pants, jacket, shoes, helmet, eye protection, injury protection value and conspicuity
1.3	State Laws	age, licensing, financial responsibility, helmet regulations, street operation and motor vehicle laws
1.4	Moped Inspection	appearance, condition, prevention value, legal compliance, equipment
1.5	Post Operation	engine shut down parking and securing
2.0	Basic Control Skills	
2.1	Starting the Engine	location of controls techniques of activating ignition
2.2	Turning	effects of body lean moped lean steering speed

2.3	Stopping	brake systems location of controls surface variations determination of stopping distances lockup avoidance and effects
3.0	Safe Riding Practices	
3.1	Communication	use of conspicuity producers signalling use of brakes and lights
3.2	Seeing	I P D E hazard identification traffic awareness mirror adjustments-- both sides shoulder checks signs, signals and markings selection of escape routes stability and control
3.3	Maintaining Separation	safe following distances and selection factors affecting distances and selection lateral separation intersection concerns visibility factors and distances surface irregularities overtaking vehicles
3.4	Positioning	moped placement in and within lane
3.5	Speed Control	roadway characteristics other vehicle and interaction surface irregularities

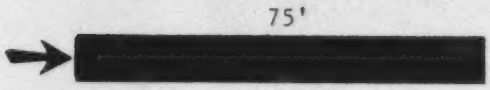
3.6	Hazards Perception	identification techniques of perception
4.0	Complex Situations	
4.1	Limited Visibility	speed adjustment space adjustment increased conspicuity
4.2	Adverse Weather	wind and turbulence speed selection operation determination
4.3	Critical Situations	surmounting obstacles lateral and longitudinal irregularities quick stops evasive maneuvering leaving the roadway
4.4	Malfunctions	common causes of engine failure response actions
5.0	Moped Care	
5.1	Inspection	pretrip inspections periodic maintenance
5.2	Maintenance	individual owner/operator dealer

APPENDIX G

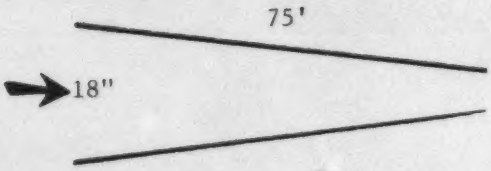
MOPED SKILL EXERCISES



CIRCLE DRIVE - stay within the circle. Go both directions. Use larger circle first.



STRAIGHT LINE DRIVE - stay on the line.



FUNNEL DRIVE - stay between lines.

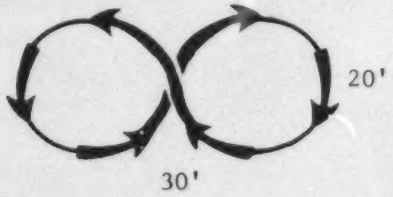
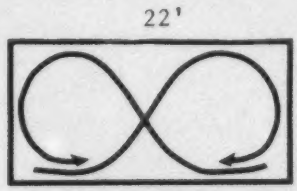
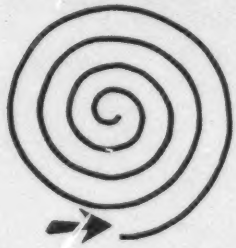


FIGURE EIGHT DRIVE - stay inside of lines. Go either direction.

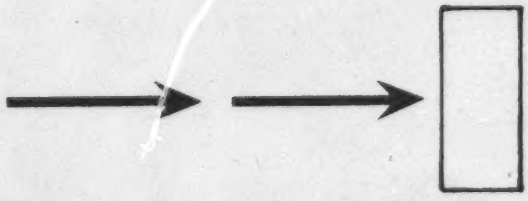
OFF-SET WEAVE - go around each one.



U-TURNS - make right and left turns.



SPIRAL DRIVE - follow and stay between lines from outside to center.



CONTROLLED STOP - stop with front tire inside box from speeds of 10 MPH and 15 MPH.

APPENDIX H

TRANSPARENCY MASTERS

Crash Countermeasures (1)

Driver Skills (2)

Accident Consequences (3)

Driver Responsibilities (4)

Performance Factors (5)

Driver Competencies (6)

Alcohol and Social Implications (7)

Impairment Progression (8)

Impairment Control (9)

Impairment Compensation (10)

Intersection Identification (11)

Intersection Hazards (12)

Uncontrolled Intersections (13 a-c)

Major Traffic Conflicts (14)

Right of Way Situations (15)

Route Selection (16)

Lane Selection (17 a-f)

The transparency masters identified here are contained in a supplementary package and can be used for reproducing transparencies for use with an overhead projector or can be used for reproducing copies made by a duplicator.